

Live the experience by Nicholson: the Merchants Bridge Project in Saint Louis, Missouri

Merchants Bridge is a historic through-truss railroad bridge that crosses the Mississippi River north of St. Louis, Missouri. The bridge is the sixth busiest freight train crossing of the Mississippi River and hosts approximately 32 trains per day. The combination of the bridge's location within the New Madrid fault system and the increased weight of rail traffic made the case for a repair project, which included expanding and encasing the existing piers, replacing the exiting truss spans and expanding and encasing the approach spans.

Nicholson was contracted by Walsh Construction to perform micropile installation as part of a rehabilitation project to upgrade the existing pier capacities. This required our team to work from land as well as on water. The work began in February 2020 and was completed in June 2021.

The project is on track for completion by early 2023.

Let's Drilldown into Merchant's Bridge!



Residents of the Mississippi River

The Mississippi River is home to 360 species of fish, 326 species of birds, 145 species of amphibians, 50 species of mammals and many reptiles.

*Facts courtesy of Experience the Mississippi River

Hello St. Louis!

Known as the "Gateway to the West", the 2.8 million person metropolitan area was founded in 1764 and named after King Louis IX. The Gateway Arch, the most famous arch that doesn't have anything to do with fast food, is one of the many popular tourist attractions in the city. To withstand seismic activity, the Arch can actually sway as many as 18 inches (45.72 centimeters) - which can be a little alarming for tourists inside the structure!

Merchants Bridge

Merchants Bridge is a historic, steel, through-truss railroad bridge that crosses the Mississippi River north of St. Louis, Missouri.

The bridge has been open for more than 130 years and is a true joint, open-access facility that may be used by any railroad, which eliminates the need for each railroad to construct their own bridge across the river.



Seismic activity

The bridge sits within a seismically active region, due to its proximity to the New Madrid Fault System*, which is classified as a medium level hazard.

*Also known as the Reelfoot Rift or the New Madrid Fault Line, is a major seismic zone at the boundary of the southern and midwestern United States, extending southwest from New Madrid, Missouri.

Existing pier foundations

The historic pier foundations for Merchants Bridge were constructed in the 1880s. Hydraulically sunken caissons were used to first access the top of bedrock, which was relatively shallow and uniform across the bridge's alignment.

Micropiling on the Mississippi

It was required for the existing piers supporting Merchants Bridge to be expanded and encased to keep the bridge functional. Walsh Construction contracted Nicholson to install 56 micropiles in three phases for the project.

Third phase of micropiling

Phase 3 (end of 2020) included the installation of 14 piles and 1 verification pile on the East bank (Pier 1).

Piles at Piers 1, 2, and 3 were drilled from a working platform over the river with barge support and Pier 4 were drilled from a causeway.

First phase of micropiling

Phase 1 (Feb 20 start) included installation of 14 piles and one verification pile on the West bank of the river (Pier 4).

Second phase of micropiling

Phase 2 (started in the mid-summer of 2020) included 28 piles in the waterway (Piers 3 and 2).

The Mississippi River

The Mississippi River is 2,340 miles (3,766 kilometers) long and runs through more than 110 counties and parishes. Fun fact: it takes 90 days for a drop of water to travel the entire length of the Mississippi River.

*Facts courtesy of Experience the Mississippi River

SOURCE

<https://www.nicholsonconstruction.com/drill-down/the-merchants-bridge-project>